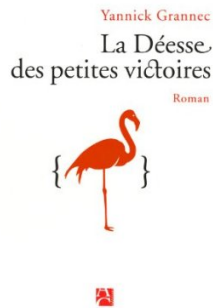
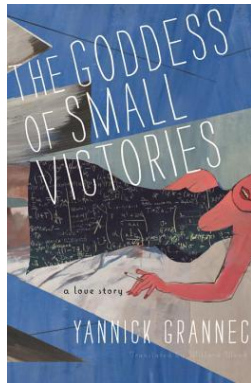


The goddess of small victories Random House, 2014, ISBN 978-1-59051-636-2, 464 pp.
La déesse des petites victoires Éditions Anne Carrière, 2012, ISBN 978-2843376665, 468 pp.
De godin van de kleine overwinningen De Arbeiderspers, 2014, 978-9-029588409, 414 pp.
 by *Yannick Grannec*.



Yannick Grannec

Kurt Gödel (April 28, 1906 – January 14, 1978) is considered to be one of the greatest logicians of all times and he has certainly shaken the foundations of mathematics in the 20th century.

Because of an illness in his youth he had a weak heart for the rest of his life. For his doctoral subject at the University of Vienna, he decided to work on the completeness problem formulated by Hilbert which resulted somewhat unexpectedly in his famous incompleteness theorems from 1930. These state that in the axiomatic system that is used in mathematics there are true statements that can never be proved. It stopped the formalism of Hilbert culminating in the *Principia Mathematica* by Whitehead and Russell abruptly.

He met his later wife Adèle during his PhD studies, but since she was a dancer in a nightclub, divorced and six years older than Kurt, his family resisted against a marriage.

He was teaching at the university when one of his students Moritz Schlick was murdered by a nazi sympathizer. This resulted in a nervous breakdown of Gödel. He developed a paranoid fear of being poisoned and he had to spend a long time in a sanatorium to recover.

He gave a lecture at the AMS annual meeting in 1933 where he met Einstein. They were good friends ever since. In 1934 he visited the *Institute of Advanced Studies* (IAS) to give a lecture series, but then he got another depression from which he had to recover.

He finally married Adèle on 28 September 1938 and they left one year later for the US after the *Anschluss*. They traveled with the *Trans Siberian Express*, crossed the Pacific from Japan, and then took the train to Princeton where he had accepted a position at the IAS.



Kurt & Adèle's marriage

In 1947 Gödel applied for American citizenship for which he and his wife had to pass some kind of exam before an American judge, which is a kind of formality. However Gödel had studied the constitution thoroughly and claimed that there was an inconsistency that allowed the US to become a dictatorship. Einstein and Morgenstern accompanied him and fortunately Einstein knew the judge and the citizenship was awarded anyway.

He has contributed many other results to logic, philosophy, and he computed solutions of Einstein's general relativity field equations that would allow time traveling. He gave this to Einstein for his 70th birthday. Later in life he produced notes to prove the existence of God. In 1951 he and J. Schwinger were awarded the first Einstein prize.

He suffered however also periods of depressions and again afraid of food poisoning would only eat when his wife forced him to. When she fell sick and had to be hospitalized for a longer time, he literally starved himself to death.



A. Einstein



W. Pauli



R. Oppenheim



K. Gödel

These are some of the historical facts against which Yannick Grannec has written a fiction novel. She is a French graphical industrial designer with a strong interest in mathematics. She was struck by the situation of Adèle, who was married to a man obsessed by mathematics, while she had a totally different background and without higher education. How was she living in Princeton where the IAS at that time attracted the top scientists of the whole world and where the foundations of mathematics and physics were rewritten. A time when the first computers were constructed, and all this against a background of WW II.



1951 Gödel and Schwinger get the 1st Einstein prize

explain things to Adèle at a level that she could understand. The best way to read this book as a mathematician is to read about Gödel's life and work first, perhaps also somewhat about the IAS and the collection of bright minds that were gathering there in the period 1930-1948.

Adèle Gödel died on 4 February 1981 in a retirement home surviving her husband for 3 years. The plot of the novel is that Anna Roth, a research librarian at the IAS, is assigned to befriend Adèle and try to acquire from her the *Nachlass*, Gödel's legacy, hoping to find there a proof or disprove of the continuum hypothesis. This allows Grannec to let Adèle tell her story woman to woman. Anna Roth, divorced and herself the daughter of two mathematicians, has no problem to imagine Adèle's world. Technically, Grannec alternates a chapter of Adèle's story of her life and a chapter in which we learn to know Anna. The former based on historical facts, the latter totally fictitious. All in all, it is a rather unfamiliar and very female look at a world of mathematicians from the outside looking in.

Grannec, not being a mathematician, you should not read the book to learn about what exactly Gödel has done for mathematics. Nevertheless, since the mathematics, the philosophy and all these scientists chatting away are essential elements for the book, science does appear, but only at a level that any reader should be able to understand. The trick that Grannec uses is that some of these scientists try to



Einstein and Gödel

Anna's story starts with her first visit to the retirement home where she meets the stubborn and far from cooperative grumpy Adèle for the first time. Adèle's story starts when she seduces Kurt Gödel when he visits the *Nachtfalter* where she was a dancer trying to get a living after her divorce. Gradually, as their stories advance, the old and the young women start to feel sympathy for each other. Anna's experiences in life have not been easy, but she gradually is pushed by Adèle to pick up her life again, and that includes the shards of her love life, and make the best of it. She comes to a conclusion at the end of the novel after Adèle has passed away.

The most interesting story line is of course Adèle's. Kurt Gödel is sketched as a man constantly in need of being taken care of. In the beginning Adèle tries to help him with a lot of love and care while he is recovering in a sanatorium. They both resist the disapproving family during an impending increase of nazi power. Adèle literally has to defend Kurt with her umbrella when he was harassed mistakenly taken to be Jewish. Crossing Russia by train on their way to Princeton is a terrible experience. In difficult circumstances such as this, all Kurt can think of is his work, while she has to worry about all the practical issues.



1950 Kurt Gödel and Oscar Morgenstern



Adèle



Adèle 1957



Adèle and Kurt Gödel at Linden Lane

In Princeton she is feeling excluded from the conversations, partly because she did not speak English, but also without education, envying the spouses of Kurt's colleagues, and homesick for her family and Vienna. She seems to be the only one in these circles constantly in need of money living in a small flat while others live in fancy houses. Kurt is only working, always it is too cold or too hot for him, and he has an obsession to open the window whether it is cold or not. He is constantly ignoring and neglecting his wife. She draws strength from the visits and diner parties of Kurt's colleagues. Einstein is one of them. It is known that Gödel and Einstein loved to walk together on the campus discussing. Einstein is characterized as a jovial, food-loving, talkative, pipe smoking, sloppily dressed, but quite charming man. The total opposite of Gödel. The science in the novel we learn during the conversations for example between Einstein, Pauli, and Gödel when they have a diner at Gödel's apartment. Or Gödel, Einstein, and Morgenstern when they take a taxi to go to the court house for their "exam" to earn their US citizenship.

When later Adèle can buy a house in Linden Lane, she speaks English better and gets more comfortable with the wives of the scientists, having their girl chit-chat, while Oppenheimer, Hulbeck, Morgenstern, and Einstein, have their discussions about quantum physics, mathematics, art, philosophy, and the political situation under McCarthyism. Oppenheimer came under fire in this which-hunt for communists. Einstein was bugged by the FBI and probably Gödel like other members at the IAS were under surveillance. The Gödels had been in therapy with Hulbeck when

Adèle didn't know how to continue any further with a man like Kurt. His name was actually Richard Huelsenbeck, a German Dadaist poet who emigrated to the US in 1936, and started a psychiatric cabinet in New York under the name Charles Hulbeck. The Gödels befriended him after that.

Grannec describes the reason for the couple's therapy after she lets Adèle have some kind of breakdown, not being able to deal anymore with Kurt's constant yammering, his standard answer 'do as you please' when Adèle asks for his advise, neglecting her, thinking only of his work, never to see her point of view, always recalcitrating when she encourages him to eat something.

Also the visit of Gödel's family causes extreme stress that Kurt takes out on Adèle. While Kurt Gödel is sinking away in further paranoia, constantly complaining about his stomach ulcer, and locking himself away in his room to work, Paul Cohen is visiting. Cohen was slammed the door in his face at the IAS when he had tried to visit earlier, but his visit at the house of the Gödels cheers Kurt up a bit. Cohen proved later that the axiom of choice and the continuum hypothesis were both independent from the Zermelo-Fraenkel axioms of set theory. He won the Fields medal for it in 1966.



R. Huelsenbeck



Paul Cohen



Adèle and Kurt Gödel



Adèle, Kurt Gödel and his mother @ IAS

We read how the couple survives the death of Einstein and other colleagues. The death of Kurt Gödel comes rather abruptly in the novel but of course this dramatic event is rather well known. The death of Adèle comes shortly after that in the novel. At that time the interest has somewhat shifted to the problems of Anna Roth. Adèle has transferred the *Nachlass* to the library as she did in reality, but in this novel, Grannec, via a note of Adèle, gives Anna the credit for it.



Adèle and Kurt Gödel's tomb

The story of a fictitious Anna has some historical interest, since also among her acquaintances some mathematical discussions take place and we are thus informed about Turing and cryptography, including the public key encryption principle and the RSA coding. Some parts of her story could be left out and seem to be only there for the sake of alteration. The novel won the *Prix des librairies* in 2013. The French pocket edition also appeared in 2014.

A. Bultheel